

CLAIMS

1. Starter system for the polymerization of unsaturated monomers in nonaqueous media containing at least
 - 5 a) peroxide compounds in quantities of 0.02 to 7% by weight,
 - b) organic hydrazine derivatives in quantities of 0.005 to 3% by weight,
 - c) transition metal ions in quantities of 1 to 1,000 ppm,

with the proviso that the quantities mentioned are based on the mixture as a whole, i.e. monomers, nonaqueous medium and starter system.

- 10 2. A starter system as claimed in claim 1, characterized in that the peroxide compounds are selected from the group of methylethylketone peroxides and cumene hydroperoxides.
- 15 3. A starter system as claimed in claims 1 and 2, characterized in that component a) is present in quantities of 0.1 to 1% by weight.
- 4. A starter system as claimed in claims 1 to 3, characterized in that component b) is selected from acetylphenyl hydrazide or toluenesulfonic acid hydrazide.
- 20 5. A starter system as claimed in claims 1 to 4, characterized in that component b) is present in quantities of 0.03 to 0.3% by weight.
- 6. A starter system as claimed in claims 1 to 5, characterized in that component c) is selected from the ions of copper, vanadium, molybdenum, cobalt and iron.
- 25 7. A starter system as claimed in claims 1 to 6, characterized in that copper ions are selected as component c).
- 8. A starter system as claimed in claims 1 to 7, characterized in that an aromatic hydrocarbon, preferably toluene or xylene, is used as the nonaqueous solvent.
- 30 9. A starter system as claimed in claims 1 to 8, characterized in that acrylic acid, methacrylic acid and derivatives thereof are used as the

monomers.

10. A process for the polymerization of unsaturated monomers, characterized in that the monomers are dissolved in a nonaqueous solvent, the temperature is increased to below 80°C and preferably to below 70°C, 5 the starter system claimed in claim 1 is added and the reaction is thus started.

11. The use of the mixtures claimed in claim 1 for starting polymerization reactions of unsaturated monomers in nonaqueous solvents.